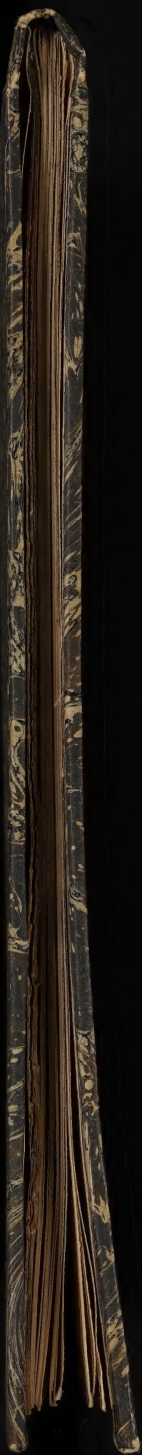


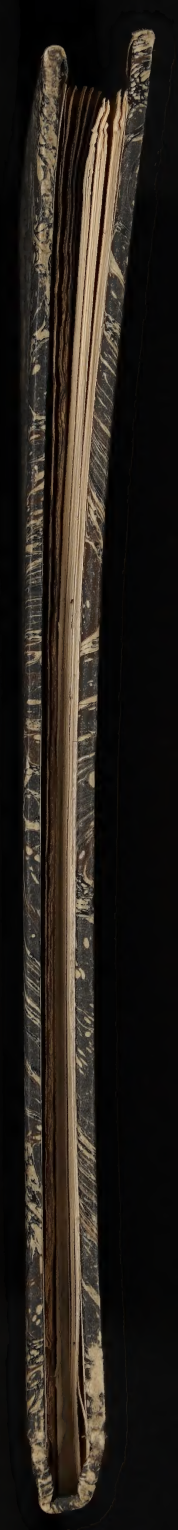


PETER — HARD FROST

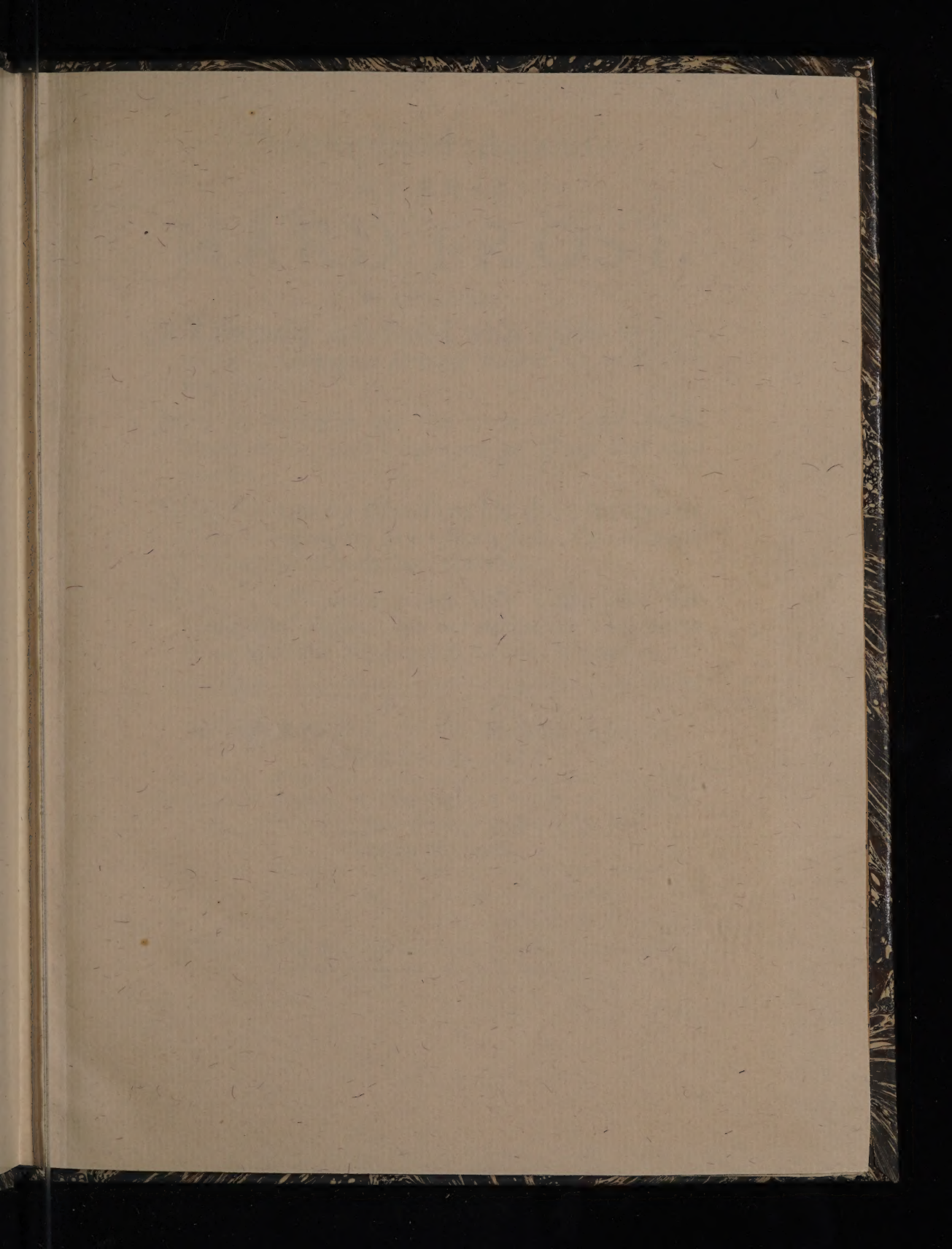
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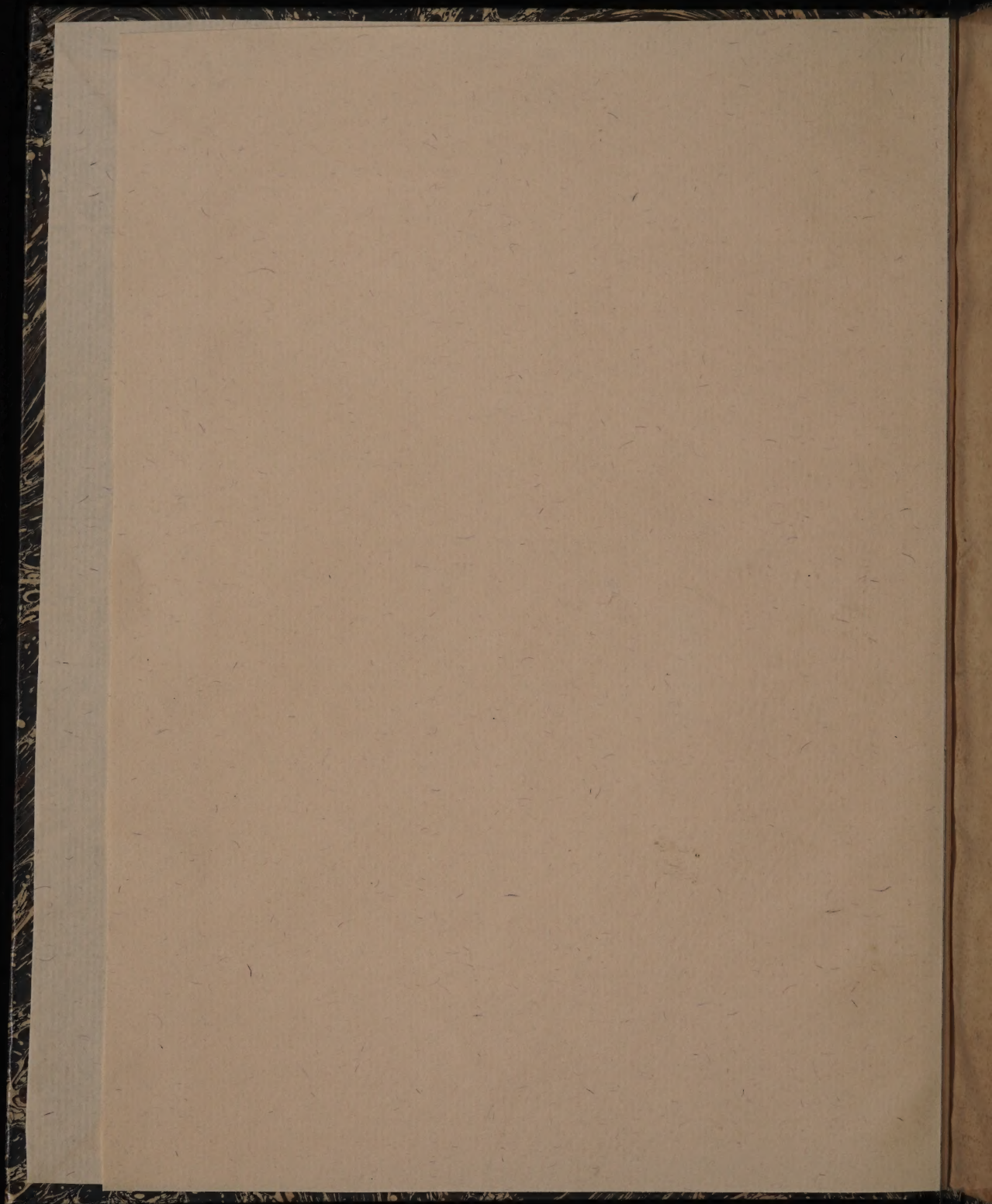






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A
Philosophical Account
OF THIS
HARD FROST.

From Whence

Is Rationally concluded what *Effects* it may probably have upon *Humane Bodies*, as to *Health* and *Sickness*.

Both in relation to the time of the *Frosts* Continuance, and to the time of *Thaw* that shall succeed.

With *Cautionary Directions* for the prevention of such *Distempers* as are likely to be the *Natural Consequence* of both those Seasons.

Which *Directions* are not only *Calculated* for this *present* Season, but are *designedly* adapted to serve upon the like occasion *for time to come*.

P S A L. 147. 17.

He casteth forth his Ice like Morsels; who can stand before his Cold?

Written in Answer to a Letter of a Person of Quality,
and at his Command made publick for the
Common Good.

By JOHN PETER Physician.

LONDON, Printed for Sam. Smith at the Prince's Arms
in St. Pauls Church Yard, 1684.

Philosophical Account OF THIS HARD FROST.

By JOHN WHITEHEAD

Is Reasonably concluded what Effects it may
produce upon the Human System as to Health
both in relation to the time of the Frost
Continued, and to the time of thawing
thereof.
The Cause of the Frost for the present
Season, is not known, and is not likely to be
known, as it is not of our power to observe
the Cause of both these Seasons.
Which Disturbances are not only calculated for
the present Season, but are also subject to
recur upon the same Season in future.

Printed by J. WHITEHEAD, at the
Printers, in Pall-mall.

With an Appendix to the second Edition, containing
a new and improved method of observing the
Continued Frost.



By JOHN WHITEHEAD
LONDON, Printed for J. WHITEHEAD, at the
Printers, in Pall-mall.

(I)

A

Philosophical Account OF THIS HARD FROST.

Honoured Sir,

Yours received, and upon weighing its *Contents*, I find my self involved in a *Dilemma*: If I should stifle it by *silence* or answer it by *excuse*, I should give you a just occasion to be jealous of my obedience to that *Command* (I have always more than pretended) you justly have over me: On the other hand, by readily answering *your desire*, I shall pitifully expose my insufficiency for such a *Task*: I confess I cannot for my life be so ungrateful and disobliging, as to become guilty of the former part, and therefore considering into *whose hands* I shall fall, I shall the cheerfuller proceed in doing my endeavour to answer *your desire*, viz. That I would present you with an *Hypothesis* of the *Natural Reason* of *Heat* and *Cold*, *Frost* and *Thaw* (2.) That I would give you my *Opinion*, What *Effects* this extream Cold and *Frosty Season* may probably have on *Humane Bodies*, as to *Health* and *Sickness*.

In undertaking to Salve the *Phænomena* of *Meteors*, I shall not look back into the *Egyptian Darkness* of the *Peripatetick Philosophy* (you seeming to intimate, that the dissatisfaction you found in its *Theory*, gave you Incitement to put me upon this *Design*) to ingulf my self and you in un-

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telligible *Notions* , but shall launch out into a more genuine and better grounded *Hypothesis* , wherein all *Appearances* of *Nature* are easily *Solvable*. Therefore to cut my *Suit* according to my *Cloth* , to fit my *Answer* to your *Request* to the *size* of a *Letter* , I shall (1.) briefly offer you an *Hypothesis* of *Meteors* in general. (2.) Of *Heat* and *Cold*, *Frost* and *Thaw* in particular. (3.) I shall endeavour from the same *Theory* rationally to conclude what *Effects* this extream *Cold* and *Frosty Season* may probably have upon *Humane Bodies* , as to *Healib* and *Sickness*.

That the several *Appearances* in *Metereology* (as all other *Phænomena's* in *Nature*) are best resolvable by *Spagiritick Principles* (viz. *Spirit*, *Sulphur*, *Salt*, *Water*, and *Earth*) daily Experience evinces, and that according to their various *Motions* and different *Proportions* in mixt *Bodies*, are the said *Bodies* built up and demolish'd ; rais'd up, and taken in pieces again.

As in *Meteors* , so also in *Minerals*, the chief active *Principles* are *Salt* and *Sulphur* , they are both for the most part conceived in the same *Womb* : As the Production of the last is made by the said *Fermentative Principles* or *Elementary Particles* grown compact ; and made concrete in the teeming *Womb* of the *Earth* : So whilst the said *Fermentative Principles* are fluid, and in *Solution* , fluctuating here and there in the *Earths bowels* , they fume out various *Exhalations* through the subteraneous passages, which mingling with the *Airy Corpuscles*, supply the *Region* of the *Atmo-sphere* , with the usual variety of *Appearances* observable by every vulgar *Eye*, as *Clouds*, *Wind*, *Snow*, *Hail*, *Rain*,
Dew,

Dew, Hoary Rimes, the vicissitude of *Heat* and *Cold*, &c. as also with others more unusual and strange, as Fiery Drakes, Dancing Torches, Burning Globes, *Ignis Fatuus*, *Ignis Lambens*, *Parelii*, & *Paraselenæ* (many Suns and Moons) and many other wonderful *Apparitions*.

2. From this short *Hypothesis* of *Meteors* in general, I raise the following one of *Heat* and *Cold*, *Frost* and *Thaw* in particular.

First, The *Particles* of *Cold* being conceived in the *Frozen Womb* of the Earth (in that *Climate*, where the enlivening and thawing *Beams* of the Sun seldom or never approach) passing through the *Pores* of the Earth into the *Airy Region*, are brought to us through the *Air* (their proper *Vehicle*) by certain peculiar *Winds*, which in their Motion, meeting with Liquid *Watery Bodies*, do co-agulate them; by which means those *Bodies* we call *Ice*, *Snow*, &c. are constituted.

Secondly, As there be *Corpuscles* of *Cold*, so are there also *Particles* of *Heat* begot in a different *Womb* of the Earth in those *Regions*, which are mostly or always visited with the Parching *Beams* of the Sun, which are brought to us at other Seasons through the same *Vehicle* of *Air* by different and contrary *Winds*, which in their Motion meeting with those of *Cold* (either in the *Air* or *here* below co-agulated in *Watry Bodies*) do by quite altering their *Textures*, wholly resolve, mortifie, and thaw them (as we daily see some *Salts* do others of a different *Texture*) so that thereupon the said *Particles* of *Heat* prevailing, a warm *Temper* of *Air* succeeds, and the *Weather* becomes quite altered, and that sometimes very suddenly, even to *Admiration*.

And that the *Phenomena* of almost all *Meteors*, and their true Reasons, are deduceable from the *Exhalations* of *Sulphur* and *Salts*, as *Nitre*, *Vitriol*, *Alum*, and *Sal Armoniack*, is apparently conceivable by the following Instances of some *Artificial* ways of representing *Heat* and *Cold*: As

If you put *Oil of Vitriol* to Water in a Phial, and mix them well together by shaking, you will find, that those two Liquors (tho cold to touch) will immediately contract a greater *Heat* than the hand that holds the Glass can well suffer: and from the same cause you may make Ice it self to cause heat to another cold Liquor, by proceeding as before, with *Ice* put into *Oil of Vitriol*.

If you please to mix *Sal Armoniack* with *Saturn Ore* in a Mortar, and put them into a long Glass, and shake them well together: whilst the *Solution* is making, you will find the Glass feel very Cold, and if at the same time you wash the outside of the Glass with Water, you will find as you pour it on, long Flakes of *Ice* will immediately be congealed: The same will *Sal Armoniack* of it self do, being dissolved in *Water*.

Besides the trite and common *Experiment* of making it *Freeze Artificially*, viz. by putting either *common Salt*, or Sea Salt, or *Nitre*, or *Vitriol*, or *Sal Armoniack*, and Snow, together into a Pewter Flagon, set on a Joyn'd-stool by the Fire-side, upon which some Water is spilt, & churning them together with a Rolling Pin (or some such Instrument) in a little time the Flagon will be so *hard frozen* to the Stool, that without some difficulty it cannot be parted.

If you put Snow into a Pewter-platter, and set it upon a Chasing-dish of live Coals, and in the midst of the Snow you place a Glass of *Water*, you will find,

find, that as the *Snow* melts, the *Water* in the *Glass* will be *frozen*.

The Reason of which *Process* is this, *viz.* The *Nitrous* Particles of *Snow* being driven from their *hold* by the *Fire*, and those *Salts* (for any of these *Salts* being added to *Snow* or *Ice*, do presently dissolve their *Texture*) they in their *flight* join themselves to the Neighbouring *Water*, and so *congeal* and turn it to *Ice*.

Thirdly, I am (according to my propos'd *Method*) come to give you my *Opinion*, what *Effects* this extreme Cold *Frosty* Season may probably have upon Humane Bodies as to *Health* and *Sickness*; which I shall consider in Two Parts, (1.) In Relation to the time of the *Frosts* continuance. (2.) In Relation to the time of *Thaw*.

Whilst the *Frost* continues, and the Minute Keen Particles of Cold are in such swarms brought to us by the Northern Winds, their peculiar *Vehicle* for this *Climate* (as they are by the Southern Winds peculiar likewise to them, over whom that *Pole* is Elevated) they close up the Pores of our *Skins*, so that the usual *Vent* by *Transpiration* being stop'd up, our inward *Ferments* thereby become mightily *incigorated*; as is manifest in that *Trite* Observation, that our *Appetites* to Food are stronger, and our *Digestion* better, in *Frosty* than *Warm Weather*: And since our *Spirits* by those Particles of Cold are driven up and confined to a narrower room than ordinary, the *Sulphurous* parts of the *Blood* wanting their wonted *space* to dilate themselves in, are apter now than in warm Weather, upon every little occasion to take *Fire*, and to be thrown into an unnatural *Ferment*, thereby laying the Foundation of *Favors* of all sorts, *Small Pox*,
Pleur-

Pleurisies, *Peripneumonia*, all sorts of Internal Inflammations, External *Cutaneous Affects*, &c. as also *Gutharrs*, *Asthma's*, Long lasting *Coughs*, *Chin Coughs*, &c. For which later Catalogue I take the peculiar reason to be, because the Blood at such a time being over-charged with superfluous *Serosities* (their wonted passages by evaporation being stop'd) doth pour upon the *Lungs* so great a quantity thereof, that they are (as it were) drowned and damned up therewith, upon which account great *Obstructions* must needs succeed, the Parents of those and such like Distempers.

And should this *Frosty Season* continue one Month longer (the time wherein the *Blood* of all *Animals* is inspired with a new *Ferment*, and begins to *luxuriate*) the case would be much with our *Bodies*, as it is with *Vessels* which are filled with *Wine* whilst it is fermenting, and immediately close *bung'd* up; where the *Vessels* and the *Liquor* would be in great danger of being *spoiled* and *lost*.

And on the other hand, should the *intenseness* of the Season presently abate, and the *Atomes* of *Cold* be on a sudden now shattered to *pieces* by other *particles* of a different *composure*; yet since for almost two Solar Months they have had their Impressions upon us, we shall be made sensible of their influence a longer time than generally we are aware of, they having undoubtedly *imprinted* on our *Bodies* such *Morbifick predispositions* (like seeds of various *Diseases*) as will be ready upon fit occasions (for many *Months* next succeeding) to spring up and be brought into *Act*, to the endangering the whole frame of our *Constitutions*.

Now

Now that those persons whom this *Frosty Season* found in health, and are so now, should be put in a way to continue in the same *state*, so long (*however*) as it lasts, I shall (since it lights so pat in my way) *caution* them of two things.

1. That they take care, they do not too much exalt the *Ferment* of the *Blood* by too violent *Exercise*, or by too copious a supply of *Spirituons Liquors*: which last is too frequent a *Custom* with some, who finding themselves externally *Cold* in such an extreme *Frosty* time as this, do (upon a mistaken *Notion*) allow themselves a greater *liberty* (than at other times they were wont) in the use of *Distilled Spirits, Brandy, Wine*, and other *Strang Liquors*, whereby under pretence of procuring *Heat and Vigor*, they certainly endanger the *stifling and suffocating* the *Natural Heat* within them.

2. That on the other side they be not careless in opposing the sharp and keen *particles* of *Cold* by warmth from moderate *Exercise*, or by a due and accustomed use of *Spirituons Liquors*; for let the *Blood and Liquid Juices* of our Bodies be invigorated by a due supply of *Spirituons, Saline & Sulphurous Particles*, whereby they may be kept constantly in motion, &c. then there will be no fear of our receiving any injury by *Cold*: but where through necessity or carelessness, those needful supplies are wanting, it is no great wonder if such do fall *Victims* to this almost-intollerable *Season*: For from what parts of our Bodies soever, the *Spirituons particles* shall be forc'd to with-draw themselves and make a *Retreat*, they will instantly be supplied with the nimble *Particles* of *Cold*, which will congeal

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our *fluid humours*; and if suffered to prevail, must certainly put the *Spirits* to a rout. For that the *Particles* of Cold at some times and in some places are so intense, that they irrecoverably destroy the *Ferments* of *Men* and other *Animals*, is evident by their killing of many *Men* and *Beasts* in some *Countreys*, as in *Russia*, *Greenland*, *Norway*, &c. where the *Frosts* are sometimes so strong, that *Men* are often frozen to death; and I have read and been personally informed, that in those *Countries* *Men* in *Travelling* have been brought to their *Inns* frozen to death on *Horse-back*, and been found so stiff and rigid, that they have sat up strait like *Statues*.

2. Now I am come to consider what effects the *Thawing Season* (immediately succeeding this *Frost*) may probably have on *Humane Bodies*, as to *Health* and *Sickness*.

When the *Southern Winds* shall fill our *Hemisphere* with the *Particles* of Heat and Moisture, and in carrying them through the common *Vehicle* of the *Air*, shall with their great and numerous *Swarms*, meet there with those of *Frost* and *Cold*, and being of a different *Texture*, shall suddenly resolve, thaw, and take them all to pieces again, then will all *Putrefactive Ferments* grow vigorous; and upon the unhinging and unriveting the *Atomes* of *Cold* great alterations must needs be produced in the *Bodies* of all *Animals*.

Whatever Cold, Frosty, and Snowy Winters may conduce to the invigorating the Earth, to make it the more Fertile in producing *Vegetables* (I shall not here examine;) but if we look back into those Years in which have happened the most *Epidemical Malignant Diseases*, and the greatest *Mortalities*, we

we shall find they have succeeded the *Coldest*, most *Frosty*, and *Sharpest Winters*.

When after a *Vigorous Assault* the *Particles* of *Cold* have kept possession of the minute *Portals* of our *Bodies*, for (it may be) two or three *Revolutions* of the *Earth Attendant*, they shall be so strenuously *attagued* by the prevailing *Particles* of a contrary *Extream*, that they shall be forc'd to surrender and to quit their *Hold*; what *quarter* then can we expect should be given to the various *Juices* of our *Bodies*? Can any *Extream* be *Friendly* to *Nature*? Can such sudden *Alteration* of the Weather prove otherwise, than mightily prejudicial to our *Healths*? Those Passages of our *Bodies* which were so long so closely lock'd up, will now be laid open, and become *laxe* and *penetrable*, liable to receive such *Exotick putrefactive Ferments* as the *Air* (being saturated with) shall present: whence is that trite and true *Observation*, that in Cold, Raw, *Thawing Weather* People generally take more Cold, and are more prone to Diseases than at other *times*: And it is *mostly* of such Weather, that *Aged* and *Infirm Folks* do (by their *Almanacks*, as 'tis said, in their *Bones*) so truly prognosticate, and discern its *approach* before-hand. For in such cold, open Weather, the raw and moist *Particles* in the *Air*, insensible insinuating themselves into our gaping Pores, slide into the *Mass* of *Blood*, whereby it becoming overcharged with *Superfluous Serosities* (as from another cause, before intimated, it was, whilst the *Frost* lasted) it carries them in a full Current to the *Lungs*, where depositing them, they there stagnate, and thereby become the cause of

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desperate *Coughs*, *Asthma's*, *Gouts*, *Rheumatisms*, *Drowsiness*, with manifold other *Symptoms*, vulgarly ascribed to the *Scurvey*.

Thus (Honoured Sir) according to my present Sentiments of Things, I have endeavoured to comply with your desire; which tho it be far from being done *Dignum Rei*, yet of such as it is (I will presume to say) I question not its *Candid Acceptance*: your Commands gave it Life, had it not been for that, it had never had Being: And the daring *Atoms* of *Cold* insinuate themselves into the *Ink* in my *Pen* whilst I am Writing, and 'tis by the *Magick* of your Commands if my *Intellectuals* have been kept *Frost-free*.

Feb. 2. 168²₄
E. Muscolo
Lewishamensis.

Honoured Sir,

Your most Humbly

Devoted Servant,

J. P.

